

REMARKS

In response to the Official Action mailed January 17, 2002, Applicants amend their application and request reconsideration. In the Amendment, claim 21 has been amended to correct informality. Claim 13, 15-22 and 35 are now pending and under examination.

Claims 13, 15-22 and 35 were rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification. Regarding claims 13 and 25, the Official Action stated that the specification fails to adequately disclose how to make the filter element because it does not disclose the thickness or density of the inflow and discharge layers. This rejection is respectfully traversed.

Dr. Klein's Declaration addresses this rejection and clearly establishes that the claimed invention can be made as long as the specific weights of the filter element's inflow and discharge layers are within the respective claimed ranges, and knowledge of the filter layers' thickness or density is not necessary to make the claimed filter element.

Applicants would like to emphasize Dr. Klein's point that to practice the claimed invention, as long as the filter layers have an increasing degree of separation and a decreasing storage capacity and the specific weights of the filter layers are within the claimed range, it is not important what values the other parameters of the filter layers have, and one of ordinary skill in the art can vary the other parameters in accordance with the specific application.

In addition, a search of the PTO's website can find numerous patents that claim a filter having a filter layer but provide no information on the filter layer's specific weight, thickness or density, porosity, or permeability. This provides further support that knowledge of the filter layers' thickness or density is not necessary to make the claimed filter element. Accordingly, withdrawal of this rejection with respect to claims 13 and 25 is respectfully requested.

Regarding claims 18-20, the Official Action stated that the specification fails to adequately disclose the methods of joining the filter layers. This rejection of claims 18-20 is respectfully traversed, because the specification adequately discloses the method of joining the filter layers (see page 5, the second full paragraph).

Regarding claim 21, the Official Action stated a filter layer including up to but not including 50% of synthetic fibers lacks basis in the original specification. Claim 21 has been amended to recites only that "up to 50% of synthetic fibers" and to delete the language "but not including." The amended claim language is supported by the specification as originally filed (see original claim 11).

Claims 13, 15-22, and 35 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. Specifically, the Official Action stated that the claim language "predominantly cellulose containing filter paper" is unclear. It is respectfully submitted the claim language means that the content of cellulose is more than that of any other component. The word "predominantly" is similar to the words "about," "substantially," etc. Accordingly, withdrawal of this rejection is respectfully requested.

Claims 13, 15-19, 21, and 35 were rejected under 35 U.S.C. §103(a) as being unpatentable over Kadoya (U.S. Patent 4,976,858). Claim 20 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kadoya in view of JP 63-278517. Claim 22 was rejected under 35 U.S.C. §103(a) as being unpatentable over Kadoya and further in view of Pall (U.S. Patent 4,033,881) and Girondi (U.S. Patent 6,077,391). For the reasons set forth hereinafter, it is respectfully submitted that claims 13, 15-22 and 35 are patentable over the cited references.

The rejected claims recite a number of features that are not disclosed or suggested by the cited references. For example, claim 13 recites a filter element that includes filter layers having a decreasing storage capacity. The cited references, on the other hand, do not disclose or suggest this feature.

The Official Action, however, stated that Kadoya discloses this feature, citing lines 5-38 of column 3. Applicants respectfully disagree. Kadoya discloses filter layers having different densities measured in the unit of g/cm³ (see column 3, lines 5-10) and different abilities to separate particles of different sizes (see column 3, lines 31-37). However, Kadoya does not teach that the filter layers have different storage capacities. The fact that the filter layers disclosed in Kadoya have different densities and different abilities to separate particles of different sizes does not necessarily mean that these filter layers have different storage capacities. Other parameters, such as fibrous structure and fiber coarseness, can also affect the storage capacity of a filter layer (see the specification, the paragraph bridging pages 3 and 4). This conclusion is also supported by Dr. Klein's Declaration, in which he stated that a filter layer's separation and storage capacity is affected by many factors, such as specific weight, thickness, fibrous structure and fiber coarseness. Accordingly, Kadoya does not teach filter layers having a decreasing storage capacity.

Claim 13 also recites that the inflow layer is comprised of synthetic fibers of a melt-blow non-woven web. According to the Official Action, however, the "melt-blow" limitation relates to a method of making a filter and carries no patentable weight in an apparatus claim. Applicants respectfully disagree, because the "melt-blow" limitation has important structural significance (see the specification, the paragraph bridging pages 3 and 4).

Claim 13 further recites that the discharge layer is comprised of a compressed filter paper, which is not disclosed or suggested by Kadoya. The "compressed" limitation also has important structural significance (see the specification, the paragraph bridging pages 4 and 5).

In view of the above discussion, claim 13 is patentable over the cited references. Claim 35 is also patentable over the cited references for the same reasons. Further, since the dependent claims depend from claim 13, they are also patentable.

In light of the foregoing remarks, this application is considered to be in condition for allowance, and early passage of this case to issue is respectfully requested. If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as a petition for an Extension of Time sufficient to effect a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #178/48916).

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Respectfully submitted,



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VERSION WITH MARKINGS SHOWING CHANGES MADE

IN THE CLAIMS:

Claim 21 has been amended as follows:

21. (Twice amended) A filter element according to claim 13, wherein at least one of the cellulose-containing filter layers includes up to [but not including] 50% of synthetic fibers.